# FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

**May 19 to June 1, 2013 (Weeks 21& 22)**

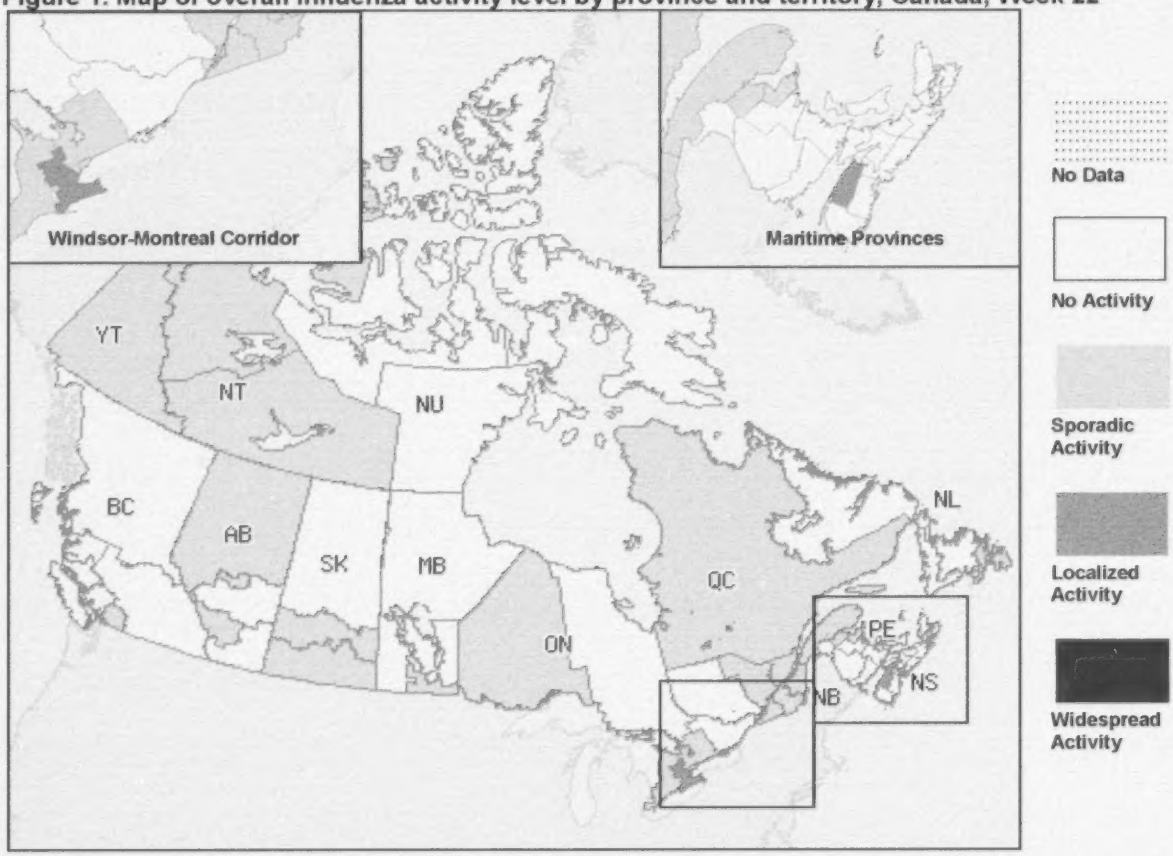
## Overall Summary

- Influenza activity in Canada continued to decline, with only two regions reporting localized activity in each of weeks 21 and 22.
- The percentage of laboratory tests positive for influenza was 3.4% in week 22. Influenza B continues to be the predominant circulating type.
- Interrupting its recent upward trend, detections of rhinovirus decreased in week 22. Detections of other respiratory viruses were stable or decreasing in weeks 21 and 22.
- The ILI consultation rate has been fairly stable over the past 8 weeks, and above the expected range for the past five weeks.

## Influenza Activity (geographic spread) and Outbreaks

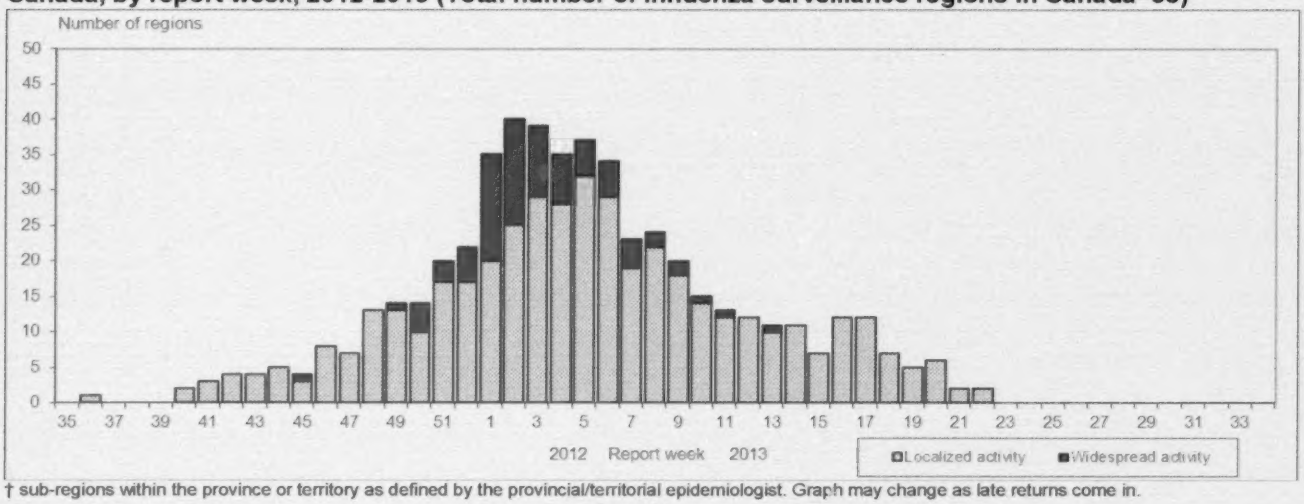
The number of regions reporting localized influenza activity continued to decrease, and was stable in weeks 21 and 22. In week 21, two regions [in ON and NS] reported localized activity and 23 regions reported sporadic activity. In week 22, two regions [in ON (a different region than in week 21) and NS] reported localized activity and 22 regions reported sporadic activity (Figures 1 and 2). One new influenza outbreak in a long-term-care facility was reported in week 21 (Figure 3).

**Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 22**



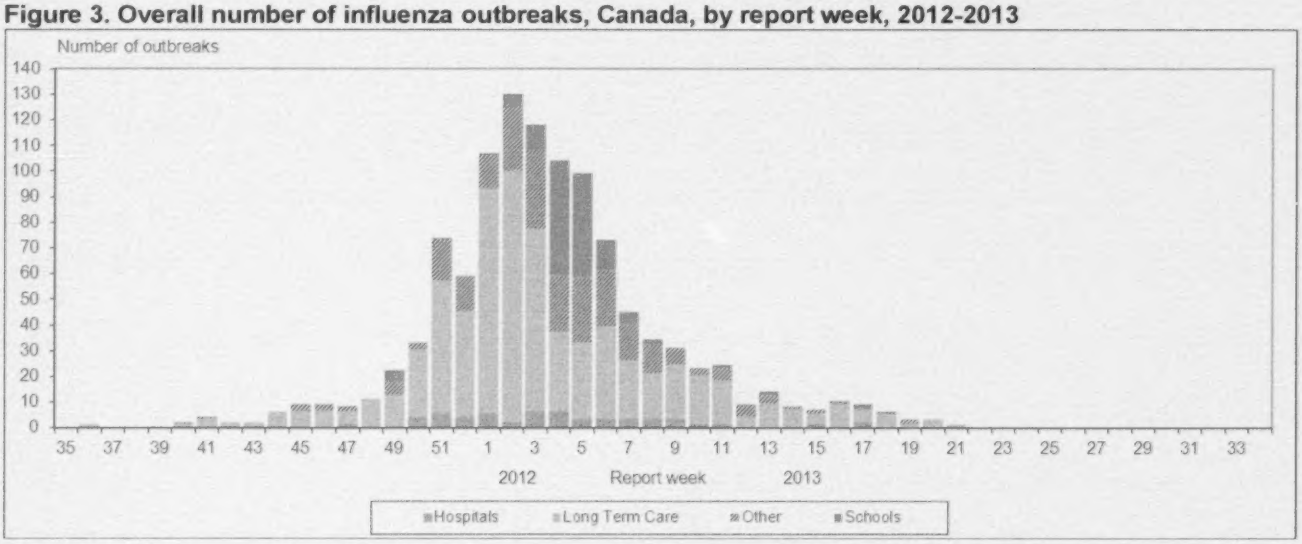

Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

**Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)**




† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

**Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013**




## Influenza and Other Respiratory Virus Detections

The overall percentage of positive influenza tests continued to decrease, and was 4.0% in week 21 and 3.4% in week 22. Detections of influenza B represented 81.9% of total positive influenza detections in weeks 21 and 22 (Figure 4). Among the influenza viruses detected in weeks 21 & 22 (n=144), 18.1% were positive for influenza A viruses [of which 30.8% were A(H1N1)pdm09, 11.5% were A(H3), and 57.7% were A(unsubtyped)] (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 85.3% influenza A [34.4% A(H3), 4.7% A(H1N1)pdm09 and 60.9% A(unsubtyped)] and 14.7% influenza B (Table 1).

Detailed information on laboratory detections of influenza was received for 25,976 cases to date this season. Data on age and type/subtype was complete for 25,807 cases (Table 2). The proportion of cases by age group is as follows: 14.8% <5 years; 10.4% between 5-19 years; 16.3% between 20-44 years; 17.0% between 45-64 years of age; 41.5% ≥65 years.

The percentage of positive tests for rhinovirus decreased from 19.5% in week 21 to 14.5% in week 22, interrupting the upward trend observed since week 01. The percentage of positive tests for parainfluenza (6.8%) was stable in weeks 21 and 22. The percentage of tests positive for respiratory syncytial virus (RSV) (1.6%) continued its decline from a peak in week 08. The percentages of positive tests for human metapneumovirus (hMPV) (3.4%) and coronavirus (0.3%) decreased over weeks 21 and 22 (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

**Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013**

| Reporting provinces | Weekly (May 19 to June 1, 2013) | | | | | | Cumulative (August 26, 2012 to June 1, 2013) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Influenza A | | | | | B | Influenza A | | | | | B |
| | A Total | A(H1) | A(H3) | Pand H1N1 | A (UnS)* | Total | A Total | A(H1) | A(H3) | Pand H1N1 | A (UnS)* | Total |
| BC | 4 | 0 | 3 | 1 | 0 | 1 | 1914 | 0 | 1455 | 220 | 239 | 405 |
| AB | 5 | 0 | 0 | 3 | 2 | 22 | 2363 | 0 | 1771 | 448 | 144 | 828 |
| SK | 0 | 0 | 0 | 0 | 0 | 15 | 839 | 0 | 476 | 74 | 289 | 321 |
| MB | 0 | 0 | 0 | 0 | 0 | 8 | 659 | 0 | 79 | 10 | 570 | 112 |
| ON | 6 | 0 | 0 | 2 | 4 | 26 | 8274 | 0 | 3784 | 381 | 4109 | 938 |
| QC | 6 | 0 | 0 | 0 | 6 | 33 | 9811 | 0 | 546 | 36 | 9229 | 1931 |
| NB | 4 | 0 | 0 | 2 | 2 | 9 | 1872 | 0 | 771 | 75 | 1026 | 95 |
| NS | 0 | 0 | 0 | 0 | 0 | 2 | 388 | 0 | 165 | 8 | 215 | 9 |
| PE | 0 | 0 | 0 | 0 | 0 | 0 | 117 | 0 | 76 | 10 | 31 | 1 |
| NL | 1 | 0 | 0 | 0 | 1 | 2 | 719 | 0 | 152 | 0 | 567 | 18 |
| **Canada** | **26** | **0** | **3** | **8** | **15** | **118** | **26956** | **0** | **9275** | **1262** | **16419** | **4658** |

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

**Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013***

| Age groups | Weekly (May 19 to June 1, 2013) | | | | | Cumulative (Aug. 26, 2012 to June 1, 2013) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Influenza A | | | | B | Influenza A | | | | B |
| | A Total | Pandemic H1N1 | A/H3N2 | A unsubtyped | Total | A Total | Pandemic H1N1 | A/H3N2 | A unsubtyped | Total |
| <5 | 2 | 1 | 0 | 1 | 19 | 2988 | 221 | 840 | 1927 | 831 |
| 5-19 | 1 | 0 | 1 | 0 | 12 | 1629 | 72 | 622 | 935 | 1058 |
| 20-44 | 6 | 2 | 1 | 3 | 12 | 3488 | 349 | 1201 | 1938 | 716 |
| 45-64 | 3 | 2 | 0 | 1 | 16 | 3686 | 321 | 1206 | 2159 | 690 |
| 65+ | 3 | 0 | 1 | 2 | 16 | 9903 | 135 | 3640 | 6128 | 818 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 168 | 21 | 144 | 3 | 1 |
| **Total** | **15** | **5** | **3** | **7** | **75** | **21862** | **1119** | **7653** | **13090** | **4114** |

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

**Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013**

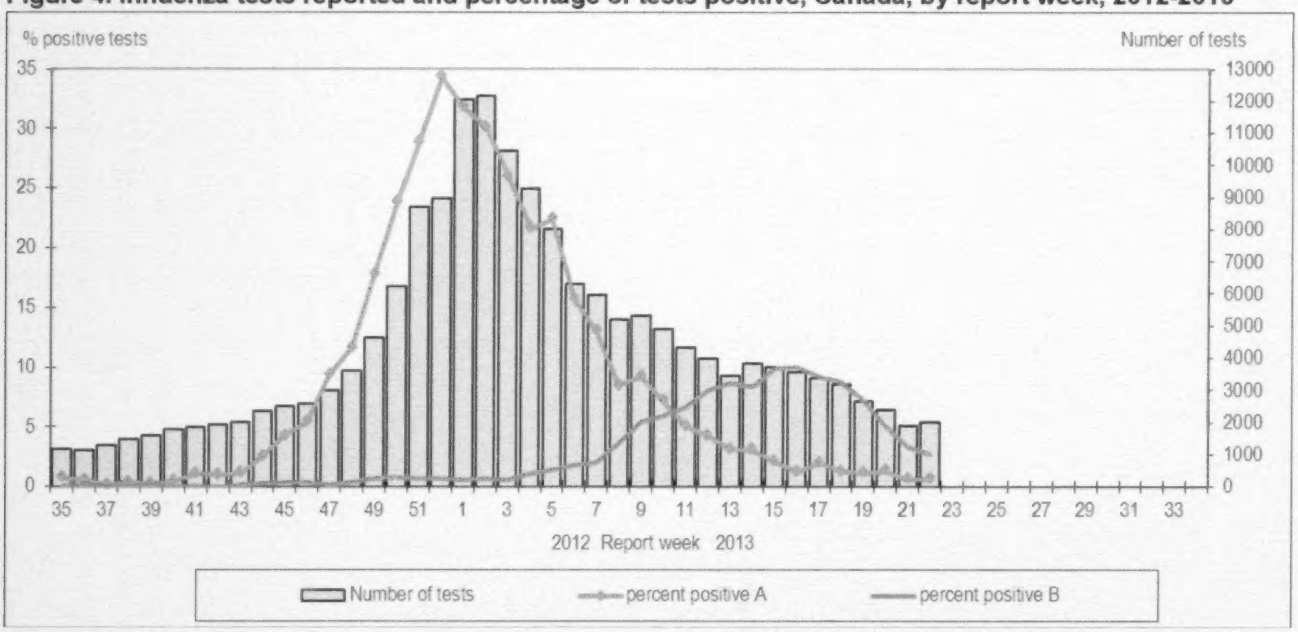
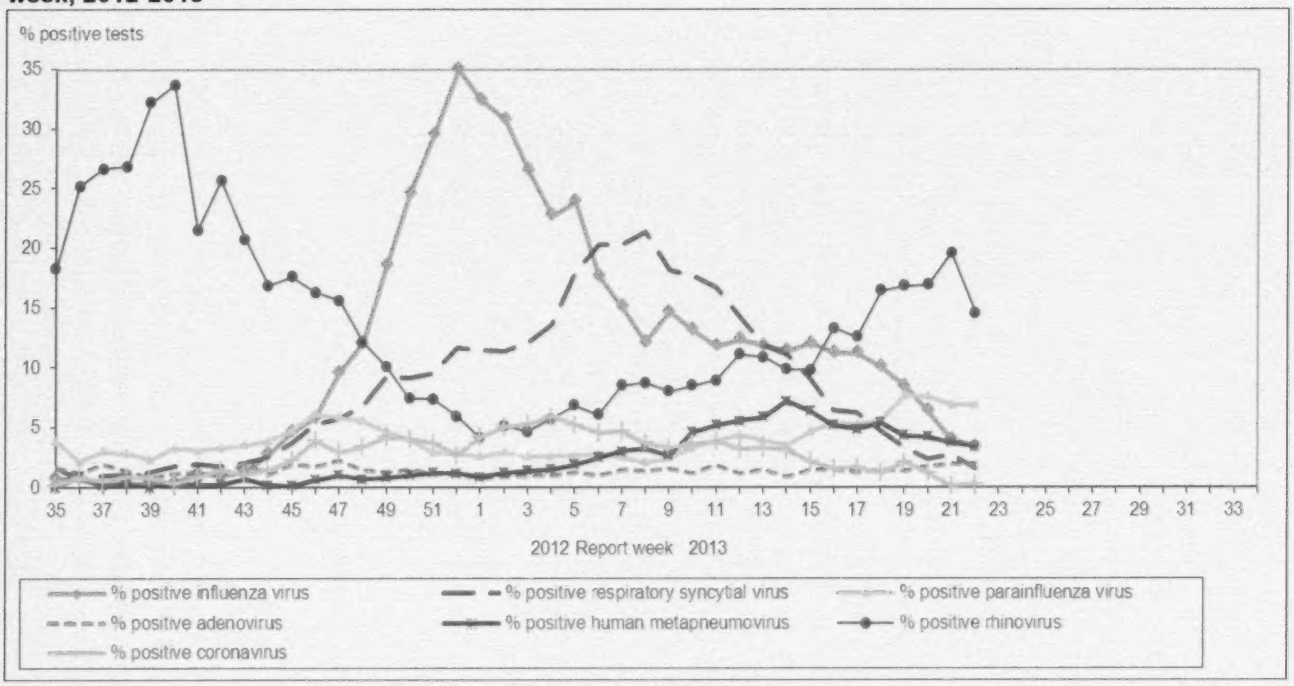


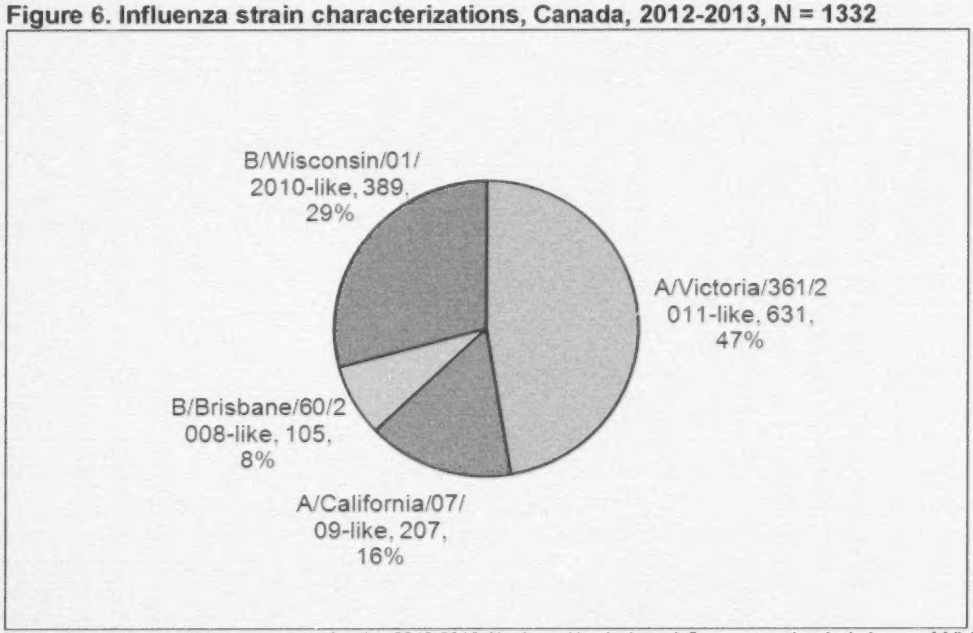
**Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013**




## Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 1332 influenza viruses. The 631 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 207 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 389 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 105 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

**Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 1332**




Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

## Antiviral Resistance

During the 2012-13 season, NML has tested 1313 influenza viruses for resistance to oseltamivir, and 1299 influenza viruses for resistance to zanamivir. Among these, one A(H3N2) virus was resistant to oseltamivir and zanamivir and one A(H1N1)pdm09 virus was resistant to oseltamivir. A total of 1264 influenza A viruses were tested for amantadine resistance and all but one were resistant (Table 3).

**Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013**

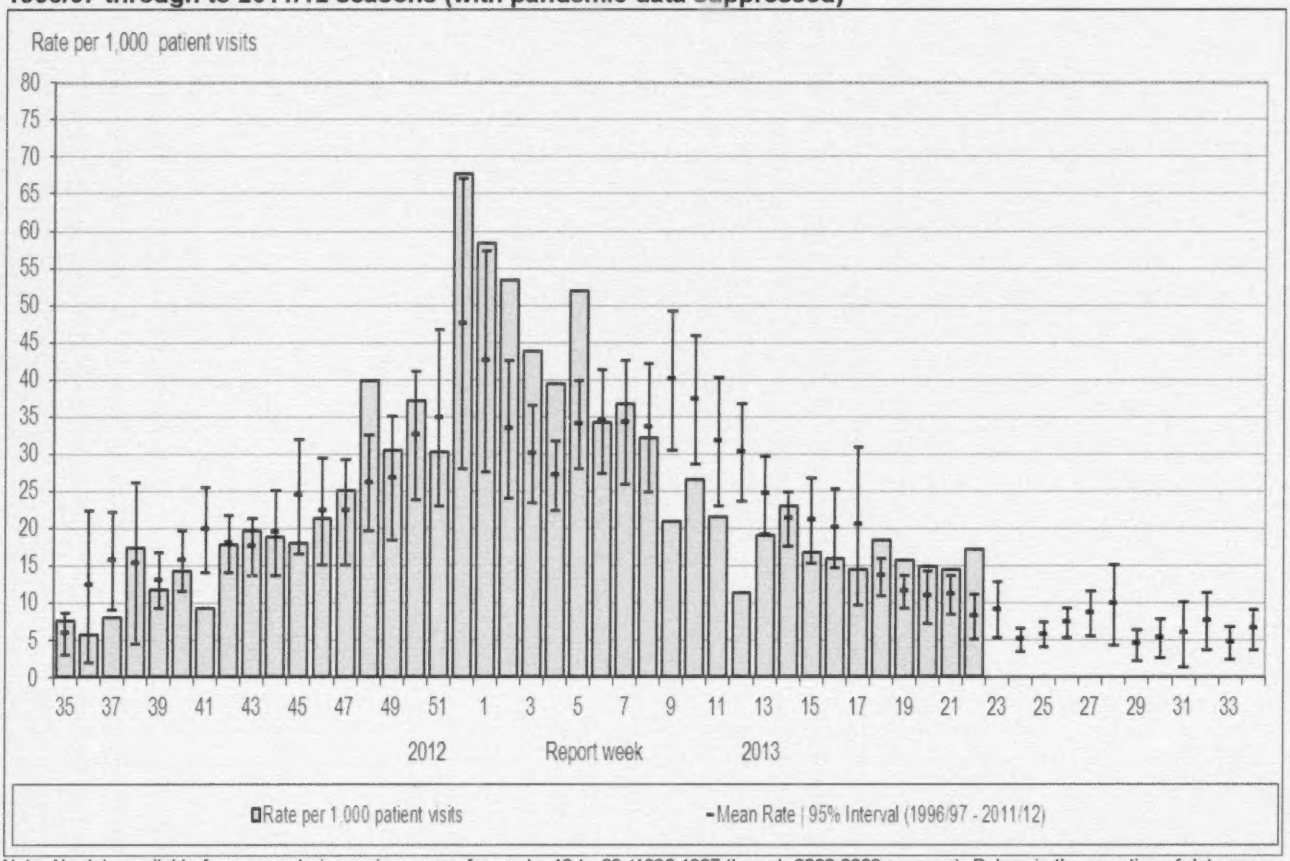
| Virus type and subtype | Oseltamivir | | Zanamivir | | Amantadine | |
|---|---|---|---|---|---|---|
| | # tested | # resistant (%) | # tested | # resistant (%) | # tested | # resistant (%) |
| A (H3N2) | 626 | 1 (0.2%) | 626 | 1 (0.2%) | 1014 | 1013 (99.9%) |
| A (H1N1) | 213 | 1 (0.5%) | 201 | 0 | 250 | 250 (100%) |
| B | 474 | 0 | 472 | 0 | NA* | NA* |
| TOTAL | 1313 | 2 (0.2%) | 1299 | 1 (0.1%) | 1264 | 1263 (99.9%) |

* NA – not applicable

## Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate has been stable over the past eight weeks, ranging from 14.4 to 18.3 ILI consultations per 1,000 patient visits, and was 17.1/1,000 in week 22. The rates observed in weeks 18 to 22 were above the expected range (Figure 7). In both weeks 21 and 22, the highest consultation rate was observed in children under 5 years of age (34.8/1,000 visits in week 22).

**Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)**




Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

## Severe Respiratory Illness Surveillance

### Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In weeks 21 and 22, three laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network; two cases of influenza B in children 2-4 years of age, and one case of influenza A(H1N1)pdm09 in a child 6-23 months of age. No admissions to an intensive care unit (ICU) and no deaths were reported during weeks 21 and 22.

Since the start of the 2012-13 season, a total of 876 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 622 (71.0%) with influenza A [of which 120 (19.3%) were A(H3N2), 26 (4.2%) were A(H1N1)pdm09 and the remaining 476 were A(unsubtyped); and 254 (29.0%) with influenza B. The distribution of cases by age group is as follows: 160 (18.3%) <6 months of age; 203 (23.2%) age 6-23 months; 253 (28.9%) age 2-4 years; 186 (21.2%) age 5-9 years; and 74 (8.4%) age 10-16 years. Of the 876 cases, 98 (11.2%) were admitted to the ICU. Of the 73 ICU admissions with available data, 61 (83.6%) cases had at least one underlying condition. One death has been reported to date this season in a child 6-23 months of age with an underlying condition, with influenza B.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

### Adult Influenza Hospitalizations and Deaths (PCIRN)

Active surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network concluded for the 2012-13 influenza season on April 30th, 2013. However, the PCIRN-SOS network continues to report limited data on laboratory-confirmed cases of influenza identified through passive surveillance at 15 out of 17 hospital sites. In weeks 21 and 22, ten hospitalizations were reported: nine of the ten were cases of influenza B and one was influenza A(H3N2); five cases were ≥65 years of age, four were 45-64 years, and one case was <20 years of age. No ICU admissions or deaths were reported in weeks 21 and 22.

The cumulative data for the season to date includes data from active surveillance from November 4, 2012 to April 30, 2013 and data from passive surveillance from May 1 to June 1, 2013. The cumulative number of cases was 1,809: 1,624 (89.8%) with influenza A [of which 312 were A(H3N2), 20 were A(H1N1)pdm09, and 1292 were A(unsubtyped)]; 139 (7.7%) with influenza B, and the type has not been reported for 46 cases. The age distribution of hospitalizations is as follows: 1230 (68.0%) were ≥65 years of age, 373 (20.6%) were 45-64 years, 194 (10.7%) were 20-44 years, and 12 (0.7%) were <20 years of age. ICU admission was required for 216 hospitalizations; the majority of which were adults ≥65 years of age (123; 56.9%). A total of 116 deaths have been reported: 26 with influenza A(H3N2), one with A(H1N1)pdm09, 82 with A(unsubtyped), 6 with influenza B, and one untyped. More than 85% of the deaths (99/116) were in adults ≥65 years of age, 14 (12.1%) were adults 45-64 years of age, and 3 (2.6%) were 20-44 years of age.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

### Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In weeks 21 and 22, 124 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. The majority of cases were influenza A (65.3%). The highest proportion of hospitalisations were in adults ≥65 years of age (44.4%), followed by adults 45-64 years of age (21.0%). Of the 14 cases with available data, two were admitted to the ICU; one adult 45-64 years of age and the other a child 0-4 years of age, both with influenza B. No deaths were reported in weeks 21 and 22.

To date this season, 4,997 influenza-associated hospitalizations have been reported, of which 86.8% have been influenza A. Of those subtyped (49.3%), influenza A(H3) was the predominant influenza strain. The cumulative proportion of influenza B among hospitalizations with influenza continues to increase (13.3% in weeks 21 and 22). Age information was available for 4,994 cases, and the age distribution is as follows: 2,633 (52.7%) were ≥65 years of age; 832 (16.7%) were 45-64 years of age; 447 (9.0%) were 20-44 years of age; 41 (0.8%) were 15-19 years of age; 262 (5.2%) were 5-14 years; and 779 (15.6%) were 0-4 years of age. Of the 1,393 cases with available data, there have been 221 hospitalisations for which admission to an ICU was required; the highest proportions have been in adults 45-64 years of age, followed by adults ≥65 years of age (35.8% and 33.9%, respectively). To date, 310 deaths have been reported: 255 adults ≥65 years of age, 36 adults 45-64 years; 11 adults 20-44 years, one child 5-14 years of age, and seven children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

## International Influenza Updates

**World Health Organization:** The most recent WHO surveillance report was published on 24 May 2013. Influenza activity in temperate regions of the northern hemisphere was at low levels in most countries. Declining but persistent circulation of influenza B and A(H1N1)pdm09 continued to be reported in North Africa. In tropical regions, influenza activity varied but was similar to previous weeks. Madagascar reported an epidemic of A(H1N1)pdm09 since the beginning of April. Transmission in India peaked in late March although activity in Sri Lanka has reached its highest level with co-circulation of influenza A(H1N1)pdm09 and influenza B. Transmission in southern China peaked in mid-March and was almost entirely associated with A(H1N1)pdm09. In the southern hemisphere, influenza activity remained low, with increased circulation of A(H1N1)pdm09 reported in South Africa. ILI activity and influenza detections remained low in Australia, New Zealand and the Pacific Islands.
*World Health Organization influenza update*

The WHO Review of the 2012-13 influenza season, northern hemisphere was published in the Weekly Epidemiological Record on 31 May 2013.

### Northern Hemisphere

**United States:** During week 21, influenza activity was at inter-seasonal levels: the national percentage of outpatient visits for ILI, the percentage of deaths due to pneumonia, and the proportion of tests positive for influenza were all low or below national thresholds.
*Centers for Disease Control and Prevention seasonal influenza report*

**Europe:** In week 20, most countries reported no influenza activity, and consultation rates for ILI/Acute Respiratory Infection (ARI) as well as hospitalization rates for severe acute respiratory infection (SARI) returned to inter-seasonal levels. Few specimens tested positive for influenza in week 20; influenza B continued to be predominant.
*EuroFlu weekly electronic bulletin*

### Southern Hemisphere

**Carribean & Central America:** Cuba and the Dominican Republic reported sustained circulation of A(H1N1)pdm09 in recent weeks.
*PAHO Influenza Situation Report*
*WHO FluNet*

**South America:** ARI activity showed an increasing trend in week 20, but was within expected levels for this time of year. Brazil has reported circulation of influenza A(H1N1)pdm09 for the past six weeks. Andean countries reported predominant circulation of RSV, co-circulating with influenza A(H1N1)pdm09 in Colombia and Venezuela; with A(H3N2) in Bolivia, Ecuador and Peru; and with influenza B in Santa Cruz-Bolivia. RSV is also the predominant virus circulating in the Southern Cone, with increasing detections of A(H1N1)pdm09 reported in Argentina and Chile.
*PAHO Influenza Situation Report*
*WHO FluNet*

**South Africa:** The influenza season was declared to have started in week 17 (week ending 28 April 2013), when the the percentage of specimens positive for influenza collected by sentinel physicians exceeded 10% and remained elevated for more than two weeks. From January 1 to May 19, 2013, 255 specimens were tested, of which 65 (25.5%) were positive for influenza, predominantly A(H1N1)pdm09.
*South Africa Influenza surveillance report*

**Australia & New Zealand:** Consultation rates for ILI were below the baseline level, with few specimens positive for influenza in week 21.
*New Zealand Public Health Surveillance*
*Australia Influenza Report*
*WHO FluNet*

## Emerging Respiratory Pathogens

**Human Avian Influenza**
Influenza A(H7N9): One new case of human infection with avian influenza A(H7N9) in Beijing, and the death of a previously confirmed case (location not disclosed) were reported on 29 May 2013. Since March 2013, 132 cases and 37 deaths of avian influenza A(H7N9) have been reported from eight provinces and two municipalities in China.
*PHAC – Avian influenza A(H7N9)*
*PHAC – A(H7N9) risk assessment*

*WHO – Influenza at the human-animal interface*
*WHO – Disease Outbreak News*
*WHO – Frequently Asked Questions on human infection with influenza A(H7N9)*

**Human Swine Influenza**

No new human cases of infection with swine influenza viruses or variants were reported in week 21.
*Centers for Disease Control and Prevention seasonal influenza report*

**Middle East Respiratory Syndrome Coronavirus (MERS-CoV)**

Since 24 May 2013, ten additional laboratory-confirmed cases and eight deaths due to Middle East Respiratory Syndrome Coronavirus (MERS-CoV) have been reported by WHO. Of note, Italy reported its first case on 1 June 2013 in a 45 year old male after a trip to Jordan. He returned to Italy on 25 May 2013 and was hospitalized on 28 May. On 2 June 2013, two contacts of the patient, niece (2 years of age) and female co-worker (42 years of age), were reported to have laboratory-confirmed MERS-CoV. The remaining seven cases were reported from Saudi Arabia. Among the 8 deaths, seven were patients in Saudi Arabia, and the eighth was the first confirmed case in France. Since April 2012, 54 laboratory-confirmed cases and one probable case of human infection with MERS-CoV have been identified, including 30 deaths. Most patients are male (70%; 38 of 54 cases) and range in age from 2 to 94 years (median 56 years). Two paediatric cases have been reported to date – a 2-year-old female in Italy, and a 14-year-old female with multiple comorbidities in Saudi Arabia.
*PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)*
*PHAC – MERS-CoV Risk Assessment*
*WHO – Coronavirus infections*

**FluWatch reports include data and information from the following sources:** laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

**ILI definition for the 2012-2013 season**

**ILI in the general population:** Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

**Definitions of ILI/Influenza outbreaks for the 2012-2013 season**

**Schools:** Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

**Hospitals and residential institutions:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

**Workplace:** Greater than 10% absenteeism on any day which is most likely due to ILI.

**Other settings:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

**Influenza Activity Levels Definition for the 2012-2013 season**

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

*We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.*

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.